

SY Type EMI Reduction Spread Spectrum

2.5 x 2.0 mm SMD Crystal Oscillator

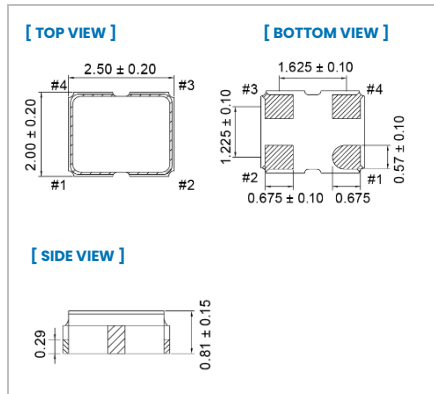
FEATURES

- Industry Standard 2.5 x 2.0 x 0.8mm Hermetically Sealed Ceramic Package
- Reduces Electromagnetic Interference(EMI) by approx. 7dB ~ 15dB
- Operation Supply Voltage: 1.8V, 2.5V and 3.3V
- Frequency Range: 16MHz ~ 40MHz
- CMOS Output Logic
- Pb-free/RoHS Compliant

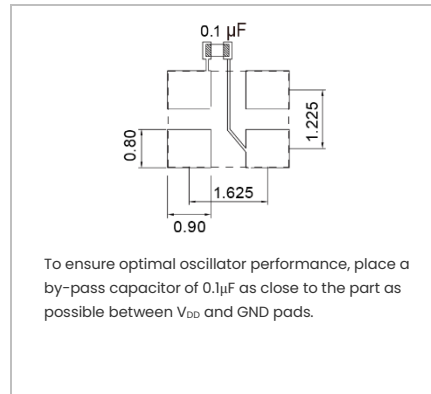
TYPICAL APPLICATION

- IP Camera, LED Module
- Media Players, Surveillance

DIMENSION (mm)



SOLDER PAD LAYOUT (mm)



PIN FUNCTION

PIN#	FUNCTION
1	Tri-State
2	GND
3	Output
4	V _{DD}

Actual Size

RoHS Compliant

ELECTRICAL SPECIFICATION

Parameter	Symbol	CMOS									Unit	Conditions / Remarks	
		3.3V			2.5V			1.8V					
		Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.			
Supply Voltage Variation	V _{DD}	V _{DD} - 10%	V _{DD}	V _{DD} + 10%	V _{DD} - 10%	V _{DD}	V _{DD} + 10%	V _{DD} - 5%	V _{DD}	V _{DD} + 5%	V		
Frequency Range	F _O	16	-	40	16	-	40	16	-	40	MHz	(*1)	
Standard Frequency	F _O	24, 25									MHz	(*1)	
Power Current Consumption	I _{DD}	-	2.5	6	-	2.5	5	-	1.5	4	mA	OE=V _{DD}	
Modulation Carrier Frequency	M _r	20	-	52	20	-	52	20	-	52	kHz	Reference F _O	
Output Voltage	High-Level	V _{OH}	90%V _{DD}	-	-	90%V _{DD}	-	-	90%V _{DD}	-	-	V	
	Low-Level	V _{OL}	-	-	10%V _{DD}	-	-	10%V _{DD}	-	-	10%V _{DD}	V	
Transition Time	Rise Time	T _r	-	-	5	-	-	5	-	-	5	nSec	
	20%~80%, V _{DD}	Fall Time	T _f	-	-	5	-	-	5	-	5	nSec	
Duty Cycle	Duty	45	-	55	45	-	55	45	-	55	%		
Start-up Time	T _{start}	-	-	5	-	-	5	-	-	5	mSec	Start from t=0 to 90%V _{DD}	
Tri-State	Output Enable	V _{IH}	0.7 x V _{DD}	-	-	0.7 x V _{DD}	-	-	0.7 x V _{DD}	-	-	V	
	Output Disable	V _{IL}	-	-	0.3 x V _{DD}	-	-	0.3 x V _{DD}	-	-	0.3 x V _{DD}	V	
Stand by Current	I _{bDD}	-	-	1.2	-	-	1.2	-	-	1.2	mA	OE=GND, Disable	
Output Loading		-	-	15	-	-	15	-	-	15	pf		
Aging (@25°C, First Year)	A _g	-	-	±3	-	-	±3	-	-	±3	ppm		
Storage Temp. Range	T _{stg}	-55	-	125	-55	-	125	-55	-	125	°C		

(*1): Standard frequencies are frequencies in which the crystal has been designed and does not imply a stock position.

SPREAD TABLE

Spread Type				
Down Spread	-2.00%	-1.50%	-1.00%	-0.80%
Center Spread	±1.00%	±0.75%	±0.50%	±0.40%

FREQ. STABILITY vs. TEMP. RANGE

Temp.(°C)	ppm	
	±25	±50
-20 ~ +70	O	O
-40 ~ +85	O	O
-40 ~ +105	X	O
-40 ~ +125	X	△

O : Available △ : Conditional X : Not Available
 Inclusive of Calibration @ 25°C, Operating Temperature Range, Input Voltage Variation, Load Variation, Aging (1st year), Shock, and Vibration

Note: not all combination of options are available. Other specifications may be available upon request.
 Specifications subject to change with notice.